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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/505,237

04/07/2005

Martin Berg

P04,0298

3822

26574

7590

06/14/2006

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EXAMINER

ZIMMERMAN, JOSHUA D

ART UNIT

PAPER NUMBER

2854

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/505,237

Applicant(s)

BERG ET AL.

Examiner

Joshua D. Zimmerman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 39-52 and 54-71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 39-52 and 54-71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 63, 67 and 68 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 63 requires a new "gradient fiber element." Reference to this focusing element in the specification or drawings could not be located by the examiner. Further, no reference in the specification to any sort of focusing elements could be found.

Claims 67 and 68 both require that the print carrier be in the shape of a drum. None of the drawings show a printing drum, nor is there any reference in the specification that discusses the possibility of the print carrier being anything other than a continuous band. Further, examiner could not find any reference to the cups specified in claim 68.

Further regarding claim 68, the scope of the claim could not be determined, as it is unclear what is meant by 'cups receiving the fountain solution layer.' As such, prior art could not be applied.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 50-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Heinzl et al. (US 6,295,928).

Regarding claim 50, Heinzl et al. disclose “a device to generate a print image on a carrier material (figure 2), comprising:

a pre-treatment station which applies a wetting-aiding substance in molecular layer thickness on a surface of a print carrier, a surfactant with hydrophilic molecule sections being used as the wetting-aiding substance (column 2, line 60);

an image generation station which structures the surfactant to create regions used for forming ink-repelling regions corresponding to a structure of the print image to be printed (figure 2, item 48);

a fountain solution application station which coats the surfactant on the surface of the print carrier with a layer which is one of ink-repelling and ink-attracting, said layer comprising a fountain solution, and forming said ink-attracting and ink-repelling regions (Figure 4);

a transfer printing station at which the ink is transferred onto a carrier material (items 12, 14 and 18 of figure 2); and

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before a new structuring on the same surface of the print carrier, a cleaning station which cleans the surface of the print carrier (item 54 of figure 2)."

The limitation "ink adhering to the ink-attracting regions and not absorbed by the ink-repelling regions" is intended use and does not recite structure.

The language "and a layer thickness for the wetting-aiding substance being smaller than about 0.1 μm " is intended use and the apparatus of Heinzl et al. is capable of applying the substance having a thickness smaller than about 0.1 μm .

Regarding claim 51, Heinzl et al. further disclose "wherein the fountain solution layer is ink-repelling, the fountain solution is based on water as an ink-repelling layer (column 2, lines 23-26)."

Regarding claim 52, Heinzl et al. further disclose "a device according to claim 50 wherein the fountain solution layer is ink-repelling and a thickness of the layer is smaller than 1 μm (column 4, lines 31-33)."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 39-41 and 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinzl et al.

Regarding claim 39, Heinzl et al. teach “a method to generate a print image on a carrier material (column 2, lines 15-21), comprising the steps of:

applying a wetting-aiding substance with a molecular layer thickness on a surface of the print carrier and using as the wetting-aiding substance a surfactant with hydrophilic molecule section (column 2, lines 55-60);

in a structuring process, generating at the surfactant regions used for forming ink-attracting regions and ink-repelling regions corresponding to a structure of the print image to be printed (column 2, lines 23-26);

coating the surfactant on the surface of the print carrier with a layer which is one of ink-repelling and ink-attracting, said layer being made from a fountain solution, and forming said ink-attracting and ink-repelling regions (column 2, lines 26-27 and 47-48 and column 4, lines 31-33);

applying on the fountain solution layer ink that adheres to the ink-attracting regions and that is not absorbed by the ink-repelling regions (column 2, lines 27-29);

transferring the applied ink onto the carrier material (column 2, lines 29-30); and

before a new structuring process on the same surface of the print carrier, cleaning and re-coating the surface with said fountain solution layer (column 3, lines 23-28).”

Heinzl et al. do not specifically disclose “a layer thickness for the wetting-aiding substance being smaller than about 0.1 μm .” However, Heinzl et al. disclose the

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thickness of the dampening solution layer as being in the μm range (column 4, lines 31-33), implying that the wetting-aiding substance thickness would be less than said dampening solution layer thickness range. It would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to make the layer thickness of the wetting-aiding substance smaller than about $0.1\ \mu\text{m}$ to obtain the optimum wetting-aiding characteristics.

Regarding claim 40, Heinzl et al. further teach "wherein said fountain solution layer is ink-repelling and the fountain solution is based on water (column 2, lines 47-48)."

Regarding claim 41, Heinzl et al. further teach "wherein the fountain solution layer is ink-repelling and a layer thickness of the ink-repelling layer is smaller than $1\ \mu\text{m}$ (column 4, lines 31-33)."

Regarding claim 47, Heinzl et al. further teach "wherein a plurality of printing events occurs before a restructuring of the surface, and the print carrier is inked multiple successive times (column 3, lines 17-23)."

Regarding claim 48, Heinzl et al. further teach "wherein the surface of the print carrier comprises one of a continuous band and a generated cylinder surface (column 3, lines 59-60 and item 20 of figure 1)."

Regarding claim 49, Heinzl et al. further teach "wherein an ink separation occurs before the transfer of the ink onto the carrier material (column 3, lines 60-65 and item 22 of figure 1)."

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4. Claims 42-44 and 54-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinzl et al. in view of Uesugi et al. (US 6,232,037).

Regarding claims 42-44 and 53-55, Heinzl et al. do not disclose the specific roughness values claimed. Uesugi et al. teach the use of a print carrier web having an average roughness value between .15 and .35 μm (abstract) in order to decrease pits in the surface and to decrease scumming (column 1, lines 55-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the print carrier of Uesugi et al. in combination with Heinzl et al. in order to decrease scumming on the printed medium.

5. Claims 45-46, 56-61, 65-67 and 69-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinzl et al. in view of D'Heureuse et al. (US 6,318,264).

Regarding claims 45-46 and 56-57, Heinzl et al. teach "wherein the radiation is at least one of a laser system, a laser, laser diodes, LEDs and a laser diode array for the structuring (column 4, lines 48-55)."

Heinzl et al. fail to teach "wherein digitally-controlled radiation is used for the structuring." D'Heureuse et al. disclose a method and apparatus for exposing which uses a laser or LED array in order to expose a printing form based on image data from a digital database (column 8, lines 39-44). It would have been obvious to one of ordinary skill in the art at the time of the invention to control the lasers and/or LEDs of Heinzl et al. in accordance with digital image information as accomplished by D'Heureuse et al. in order to speed the printing process.

Regarding claim 58, Heinzl et al. teach "a method to generate a print image on a carrier material (column 2, lines 15-21), comprising the steps of:

covering a surface of a print carrier with a wetting-aiding surfactant layer (column 2, lines 55-60);

in a structuring process generating what will become ink-attracting regions and ink-repelling regions ... corresponding to a structure of the print image to be printed (column 2, lines 23-26);

covering the surface with a fountain solution layer to create said ink- attracting and ink-repelling regions (column 2, lines 31-33);

applying at the surface ink that adheres to the ink-attracting regions and that is not absorbed by the ink-repelling regions (column 2, lines 27-29), and

transferring the applied ink onto the carrier material (column 2, lines 29-30).

Heinzl et al. fail to specifically disclose that the structuring is accomplished by removing the surfactant layer with radiation. However, one having ordinary skill in the art would recognize that the laser used by Heinzl et al. would also irradiate the surfactant layer of Heinzl et al. and would, therefore, also structure the surfactant layer.

Heinzl et al. fail to disclose that "wherein to structure the surfactant layer, radiation of a light source is directed via a control element per image point onto the surfactant layer dependent on a control signal." D'Heureuse et al. disclose a method and apparatus for exposing which controls a laser or LED array in order to expose a printing form based on image data from a digital database (column 8, lines 39-44). It

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would have been obvious to one of ordinary skill in the art at the time of the invention to control the lasers and/or LEDs of Heinzl et al. in accordance with digital image information as accomplished by D'Heureuse et al. in order to speed the printing process.

Regarding claim 59, Heinzl et al. fail to disclose that "the surfactant layer is less than .1 μm ." However, Heinzl et al. disclose the thickness of the dampening solution layer as being in the μm range (column 4, lines 31-33), implying that the wetting-aiding substance thickness would be less than said dampening solution layer thickness range. It would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to make the layer thickness of the wetting-aiding substance smaller than about 0.1 μm to obtain the optimum wetting-aiding characteristics.

Regarding claim 60, Heinzl et al. disclose "a device to generate a print image on a carrier material (figure 2), comprising:

- a pre-treatment device that applies a wetting-aiding surfactant layer onto a surface of a print carrier (column 2, line 60);

- an image generating station in which in a structuring process what will be come ink-attracting regions and ink-repelling regions are generated in the surfactant layer corresponding to a structure of the print image to be printed (figure 2, item 48);

- a dampening station which applies a fountain solution layer on said surface to create said ink-attracting regions and in-repelling regions (figure 4);

an ink application station wherein ink that adheres to the ink-attracting regions and that is not absorbed by the ink-repelling regions is applied on the surface (items 12, 14 and 18);

an ink transfer station wherein the applied ink is transferred on to the carrier material (item 44)” and

an image generating station (item 48).”

Heinzl et al. fail to disclose “the image generating station having a light source whose radiation is directed via a control element per image point toward the surface of the print carrier; and

the radiation being dependent on a control signal.”

D’Heureuse et al. disclose a method and apparatus for exposing which controls a laser or LED array in order to expose a printing form based on image data from a digital database (column 8, lines 39-44). It would have been obvious to one of ordinary skill in the art at the time of the invention to control the lasers and/or LEDs of Heinzl et al. in accordance with digital image information as accomplished by D’Heureuse et al. in order to speed the printing process.

Regarding claim 61, the entire limitation is intended use. However, the device of Heinzl et al. and D’Heureuse et al. is capable of applying a surfactant layer of less than .1 μm .

Regarding claim 65, the device of Heinzl et al. and D’Heureuse et al. is capable of emitting radiation “adapted to the surfactant layer.”

Regarding claim 66, Heinzl et al. further disclose “wherein the print carrier comprises a band in the shape of a closed loop (item 40).”

Regarding claim 67, Heinzl et al. further disclose “wherein the print carrier comprises a bend in the shape of a drum (item 20).”

Regarding claim 69, Heinzl et al. further disclose “wherein a coating system makes the fountain solution layer an ice Layer (column 4, lines 30-36).

Regarding claim 70, Heinzl et al. further disclose “wherein a cleaning station following the ink station removes remaining portions of the ink and fountain Layer (item 54).”

Regarding claim 71, Heinzl et al. further disclose “wherein the light source comprises a laser beam (column 4, lines 50-51).”

6. Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heinzl et al. in view of D’Heureuse et al. (US 6,318,264), as applied to claim 60 above, further in view of Kuroki et al. (EP 0 903 226 A2).

Heinzl et al. and D’Heureuse et al. fail to disclose that “a plurality of PLZT control elements are arranged in at least one line as an array and the structuring occurs line-by-line.” Kuroki et al. teach an array of PLZT elements (paragraph 101). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the array of Kuroki et al. in order to achieve a better image.

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7. Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heinzl et al., D'Heureuse et al. and Kuroki et al., as applied to claim 62 above, further in view of Mugrauer et al. (US 4,764,776). Heinzl et al., D'Heureuse et al. and Kuroki et al. fail to disclose an imaging system which uses gradient fibers to focus radiation from a PLZT element. Mugrauer et al. disclose such a system (figure 5) in order to alleviate switching problems (column 4, lines 10-18). Therefore, it would have been obvious to one having ordinary skill in the art to incorporate the gradient fibers of Mugrauer et al. into the modified device of Heinzl et al. in order to alleviate switching problems.

8. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heinzl et al. in view of D'Heureuse et al. (US 6,318,264), further in view of Kuroki et al. (EP 0 903 226 A2), as applied to claim 60 above, further in view of Miyagawa (US 6,081,321). Regarding claim 64, Heinzl et al. and D'Heureuse et al. in view of Kuroki et al. fail to disclose "wherein a DMD element is used as the control element." Miyagawa shows that DMD elements are an equivalent structure to PLZT elements, and is known in the art. Therefore, because these two elements were art recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute DMD elements for PLZT elements in order to have a quicker response

Response to Arguments

9. Applicant's arguments filed 06/05/2006 have been fully considered but they are not persuasive.

Regarding the argument that the order of Heinzl et al. is different than applicants, examiner notes that the language used by applicants in the claims merely requires that the claimed steps be present.

Regarding the thickness of the tensile layer of Heinzl et al., that limitation was addressed in the previous office action, and has been reiterated in the instant action.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua D. Zimmerman whose telephone number is 571-272-2749. The examiner can normally be reached on M-R 8:30A - 6:00P, Alternate Fridays 8:30A-5:00P.

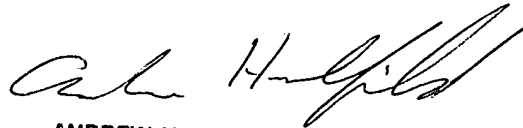
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on 571-272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joshua D Zimmerman
Examiner
Art Unit 2854

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